

## Citizen Summary



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

**U.S. Steel Midwest**

# 2010 Draft Wastewater Permit

**NPDES Permit IN0000337**

**November 30, 2010**

[www.idem.IN.gov](http://www.idem.IN.gov)

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Under the federal Clean Water Act, facilities that treat and discharge treated wastewater into a water of the United States (stream, lake or wetland) must obtain and comply with an National Pollutant Discharge Elimination System (NPDES) permit. NPDES permits are effective for up to five years and IDEM must reissue NPDES permits every five years. The permit re-issuance process allows IDEM to update permit conditions to account for facility operations and environmental regulations that may have changed over the term of the permit.

For facilities that submit renewal applications on time, the permit's expiration date is administratively extended until IDEM issues the renewal. U.S. Steel Midwest is operating under an administrative extension of the permit that was last modified in 1991. IDEM is proposing to renew the facility's NPDES permit for a five year period. The public is encouraged to review the draft renewal permit and the accompanying technical fact sheet.

IDEM is required to provide a technical Fact Sheet with the draft NPDES permit renewal document for the facility. Both documents contain extensive technical details and regulatory information. IDEM is providing this Citizens Summary to help explain what is contained in the permit documents and how citizens can participate in the decision making process.

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## 1) The Purpose of a NPDES Permit

NPDES permits contain limits for the amount of pollutants a facility can discharge in treated wastewater. NPDES permits also contain the facility's requirements for monitoring pollutants in its discharge and for submitting monitoring reports to the regulatory agencies that oversee compliance. The NPDES permitting program covers a myriad of activities and different types of discharges, including discharges from industrial facilities. In Indiana, IDEM administers the federal NPDES permitting program under a memorandum of understanding with the United States Environmental Protection Agency.

## 2) Common Permitting Terminology

**Clean Water Act (CWA) Section 316(a)** - Under Section 316(a) of the CWA, thermal effluent, such as cooling water, is considered a pollutant, and facilities wishing to discharge thermal effluent into a water source must apply for a NPDES permit. Section 316(a) allows a thermal discharger to obtain a thermal effluent variance by demonstrating that less stringent thermal effluent limitations would still protect aquatic life.

**Clean Water Act (CWA) Section 316(b)** - Under Section 316(b) of the CWA, cooling water intake structure (CWIS) shall be established so that the location, design, construction, and capacity of the CWIS reflect the best technology available to minimize adverse environmental impact.

**Daily Maximum** - the maximum allowable daily discharge for any calendar day.

**Draft permit** - a document prepared prior to the public comment period by the commissioner indicating the commissioner's tentative decision to: (1) issue or deny; (2) modify; (3) revoke and reissue; (4) terminate; or (5) reissue; a permit.

**Effluent** - a wastewater discharge from a point source to the waters of the state.

**Effluent limitation** - any restriction established by the IDEM commissioner on quantities, discharge rates, and concentrations of pollutants that are discharged, or will be discharged, from point sources into waters of the state.

**Effluent limitations guideline** - a regulation adopted by the administrator of the U.S. EPA, under Section 304(b) of the CWA, for use in establishing effluent limitations for specific point sources within a particular industrial class or category.

**Monthly average** - the total mass or flow-weighted concentration of all daily discharges during a calendar month on which daily discharges are sampled or measured, divided by the number of daily discharges sampled and/or measured during such calendar month. The monthly average discharge limitation is the highest allowable average monthly discharge for any calendar month.

**National Pollutant Discharge Elimination System or NPDES** - the national program for: (1) issuing; (2) modifying; (3) revoking and reissuing; (4) terminating; (5) denying; (6) monitoring; and (7) enforcing; permits for the discharge of pollutants from point sources and imposing and enforcing pretreatment requirements by the U.S. EPA or an authorized state under Sections 307, 318, 402, and 405 of the Clean Water Act.

**Outfall** - the point of discharge from a point source.

**Permit** - any written authorization, license, or equivalent document issued to regulate the discharge of pollutants, the construction of water pollution treatment or control facilities, or land application of sludge or waste products.

**Point source** - any discernible, confined, and discrete conveyance, including, but not limited to, any of the following from which pollutants are or may be discharged: (1) Pipe. (2) Ditch. (3) Channel. (4) Tunnel. (5) Conduit. (6) Well. (7) Discrete fissure. (8) Container. (9) Rolling stock. (10) Concentrated animal feeding operation. (11) Landfill leachate collection system. (12) Vessel. (13) Other floating craft.

**Process wastewater** - any water that, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product.

**Sanitary wastewater** - (commonly called sewage) the liquid and water-carried waste from residences, commercial buildings, industrial plants, institutions, and other places of human occupancy that is transported by sewers and is primarily composed of human and household waste.

**Wastewater** - liquid or water-carried wastes from industrial, municipal, agricultural, or other sources.

### **3) Steps in the Permit Renewal Process**

- a. Draft NPDES Permit and Technical Fact Sheet** - IDEM reviews the NPDES permit application, the existing permit conditions, the compliance history, the effluent quality and characteristics, the receiving waters characteristics, and the applicable state and federal laws, regulations, rules and guidelines in the development of a technical Fact Sheet and a draft NPDES permit. IDEM has developed the draft technical Fact Sheet and draft NPDES permit for the U.S. Steel Corporation Midwest Plant permit facility with the cooperation and oversight of the U.S. EPA.
- b. Public Participation** - IDEM announces the proposed NPDES permit via public notices in the local newspaper. IDEM also sends letters and e-mails to a list of people and organizations that have requested notification. IDEM may issue advisories to help inform news media in the area in which the discharge will occur. The draft NPDES permit is available for public review and comment for a minimum of 30 days.
- c. Where to Review Copies** - Copies of the Fact Sheet and draft NPDES permit are available for public review at these locations:
  - IDEM's website at [http://www.in.gov/idem/5338.htm#uss\\_midwest](http://www.in.gov/idem/5338.htm#uss_midwest)
  - Porter County Public Library, Valparaiso Branch, 103 Jefferson Street, Valparaiso, Ind.
  - Porter County Health Department, 155 Indiana Avenue, Suite 104, Valparaiso, Ind.
  - IDEM's Northwest Regional Office, 8380 Louisiana Street, Merrillville, Ind.
  - IDEM's Indianapolis Office, Indiana Government Center North, Room 1201, 100 North Senate Avenue, Indianapolis, Ind.

**d. About Submitting Comments and the Public Hearing**

The public comment period will end on December 27, 2010.

As part of the public participation process for this draft permit renewal, IDEM will hold a formal Public Hearing at 6 p.m., December 14, 2010, at the Northwestern Indiana Regional Planning Commission in the auditorium, located at 6100 Southport Road, Portage, Indiana 46368. The public may submit written or oral comments during the Public Hearing. A court reporter will be present at the IDEM Public Hearing to assure oral statements are documented, as they will be considered part of the official record.

IDEM also is accepting written comments that are postmarked or e-mailed by December 27, 2010. *Please include the permit number, IN0000337, when submitting written comments.* Comments may be submitted by mail or e-mail.

Mail to: Matthew Carmichael  
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E-mail to: [mcarmich@idem.IN.gov](mailto:mcarmich@idem.IN.gov)

- e. About IDEM's Final Permit Decision** - Comments addressing the technical or legal basis of the permit conditions or additional suggestions to control water pollution are deemed most helpful. IDEM may make changes to the permit requirements based on comments submitted by the public. IDEM will review and consider all comments submitted during the formal public comment period, including oral statements made during the Public Hearing, and provide its formal responses to comments in a document that will be included with the final permit decision. Individuals who do not wish to submit comments but wish to receive notification should submit their name and address to IDEM with a request to be placed on the permit mailing list. The Office of Water Quality will mail notification of IDEM's actions relating to this permit, including the final decision, to individuals who submit comments or request to receive notification.

**4) Technical Fact Sheet Summary**

- a. The Application** - The U.S. Steel Corporation has applied for the renewal of NPDES Permit No. IN0000337 for their Midwest Plant. The permit was transferred from the National Steel Midwest Division to the U.S. Steel Corporation in June, 2003. A permit modification was issued May 23, 1991 to incorporate effluent limitations for total residual chlorine and total residual oxidants resulting from the use of water treatment additives to control zebra mussels. The permit expired in March, 1995, and has since then been administratively extended. The permit regulates the discharge of process, contact cooling, non-contact cooling wastewater, and storm water runoff. A five year permit is proposed in accordance with 327 IAC 5-2-6(a).
- b. Facility Description** - The U.S. Steel Corporation Midwest Plant finishes coils received from other U.S. Steel plants into cold rolled, galvanized, chromium or tin plated strip and sheet products. Activities at the permitted facility include acid pickling, cold rolling, alkaline

cleaning, operation of a sheet temper mill, continuous annealing, electro-galvanizing, and tin electroplating.

- c. Receiving Water and Use Classification** - The receiving stream for the discharge from all external outfalls regulated under the NPDES permit is Portage-Burns Waterway (Burns Ditch). Portage-Burns Waterway, a tributary to the Indiana portion of the open waters of Lake Michigan, is located within the Great Lakes system and is protected by Indiana's water quality standards for the Great Lakes system under 327 IAC 2-1.5. Portage-Burns Waterway is designated for full-body contact recreation and shall be capable of supporting a well-balanced, warm water aquatic community. The East Branch of Little Calumet River and its tributaries downstream to Lake Michigan via Portage-Burns Waterway are designated in 327 IAC 2-1.5-5(a)(3)(B) as salmonid waters and shall be capable of supporting a salmonid fishery. The Indiana portion of the open waters of Lake Michigan is designated in 327 IAC 2-1.5-19(b)(2) as an outstanding state resource water (OSRW). Discharges to tributaries of OSRWs are subject to the antidegradation implementation procedure for OSRWs in 327 IAC 5-2-11.7(a)(2).
- d. Wastewater Sources and Treatment by Outfall** - Wastewater regulated by the NPDES permit is discharged from four separate external outfalls 001, 002, 003, and 004 (direct discharges to waters of the state). Internal Outfall 104 currently contributes process wastewater from steel finishing and from the Greenbelt II Landfill to Outfall 004. Plans for new chrome treatment plant have been submitted to reduce total chromium loading to Burns Waterway from Outfall 004 via proposed internal Outfall 204. To ensure that the contribution in wastewater from Internal Outfall 204 does not constitute a new or increased discharge in accordance with the antidegradation requirements under 327 IAC 5-2-11.7(a)(2), a virtual outfall has been added to the permit as compliance point 304. Limits originally calculated for Internal Outfall 104 have been applied to compliance point 304. To account for the combined wastestreams of 104 and 204, reporting requirements for 304 will be the sum of mass for both Internal Outfalls 104 and 204 which will confirm that the contribution from 204 is not causing a significant lowering of water quality in Lake Michigan for Outfall 004. Outfall 500 represents the combined thermal discharge from Outfalls 002, 003 and 004.

The discharge of non-contact cooling water - previously discharged from Outfall 005 - and sanitary wastewater - previously discharged from Outfall 006 - have been discontinued. Sanitary wastewater from the permitted facility is now directed to the City of Portage WWTP.

Production rates for the tin and chromium electroplating operations are based on process wastewater flow rates subject to regulation under 40 CFR 433. The storm water discharged at Outfall 001 receives no treatment. Noncontact cooling water discharged at Outfalls 002, 003 and 004 is dechlorinated seasonally with sodium metabisulfite. Currently, treatment of Greenbelt II Landfill leachate and process wastewater discharged at Outfall 104 (and ultimately Outfall 004) includes pretreatment oil separation, acid neutralization, chemical treatment-equalization, skimming, aeration, pH control, coagulant addition, mixing, flocculation, and settling. The permittee utilizes a chrome reduction treatment system that converts hexavalent chromium to trivalent chromium for Outfall 104. The trivalent chromium is directed to the main WWTP where it is removed as a metal hydroxide. Similar to the existing chrome treatment plant, the new chrome treatment plant for proposed Outfall 204 will treat hexavalent chrome wastewaters via a reduction process using sodium bisulfite, sulfuric acid, and sodium hydroxide. The new chrome treatment plant will also treat leachate from the Greenbelt II landfill and have dedicated sludge management equipment.

- e. **Effluent Limitations Rationale—General** Federal Effluent Guidelines in 40 CFR 420 and 433 and the Indiana Water Quality Based Effluent Limitations are applicable because the facility is defined as an iron and steel and metal finishing point source category.

Effluent Limitations Rationale

According to 40 CFR 122.44 and 327 IAC 5, NPDES permit limits are based on technology-based limitations, where applicable, best professional judgment (BPJ), and Indiana Water Quality-Based Effluent Limitations (WQBELs).

EPA Effluent Guidelines -- Existing Source Standards (BAT/BPT)

The U.S. EPA has established technology-based effluent guidelines for iron and steel and metal finishing facilities. Since this is an existing facility, all discharges may be subject to effluent guidelines identified in 40 CFR 420.102, 420.92, 420.112, and 420.124, Best Practicable Control Technology (BPT) and/or 40 CFR 433.14, Best Available Control Technology (BAT).

Indiana Water Quality Based Effluent Limits (WQBELs)

The water quality-based effluent limitations for this facility are based on water quality criteria in 327 IAC 2-1.5-8 or under the procedures described in 327 IAC 2-1.5-11 through 327 IAC 2-1.5-16 and implementation procedures in 327 IAC 5. Limitations and/or monitoring are required for parameters identified by applications of the reasonable potential to exceed WQBEL under 327 IAC 5-2-11.5.

- Narrative Water Quality Based Limits

The narrative water quality contained under 327 IAC 2-1.5-8(b)(1) (A)-(E) have been included in this permit to ensure that the narrative water quality criteria are met.

- Numeric Water Quality Based Limits

The numeric water quality criteria and values contained in this permit have been calculated using the tables of water quality criteria under 327 IAC 2-1.5-6(c) & (d).

- f. **Effluent Limitation Rational—Outfall Specific** - The effluent limitations contained in the NPDES permit are based on the more stringent of the technology-based effluent limitations required under 327 IAC 5-5-2, and the water quality-based effluent limitations (WQBELs) developed under the provisions of 327 IAC 2-1.5 and 327 IAC 5-2-11.6. Technology-based effluent limitations are applied to the treated process wastewater at a point prior to mixing with any other wastestreams, while WQBELs are applied at the point where the effluent discharges to a water of the state. In addition to consideration of technology-based and water quality-based effluent limitations, the antibacksliding provisions of 327 IAC 5-2-10(11) require that limitations from the previous permit be retained whenever they are more stringent than current technology or water quality-based limits, unless meeting one of the exceptions under 327 IAC 5-2-10(11)(B). This permit has maintained the same mass limits for TSS, Oil and Grease, T. Chrome, T. Zinc, Fluoride, T.Cyanide and T.Lead for the two previous permit cycles. The previous permit carried those limits through for both antidegradation and water quality issues. The permittee was meeting the limits and continues to do so regardless in the changes in production presented in the renewal applications. The anti-backsliding policy section 402(o)(1) prohibits the relaxation of limits established on the basis of BPJ limits – to reflect subsequently promulgated less stringent guidelines.

The following is an outfall-by-outfall summary of the wastewater discharged under the NPDES permit, and the applicable effluent limitations rationale:

### Outfalls 104, 204, and 304

U.S. Steel Corporation Midwest Plant has submitted plans to construct a new chrome treatment plant to reduce total chromium loading to Burns Waterway from Outfall 004. The new chrome treatment plant will treat hexavalent chrome wastewaters from the Tin Free Steel (TFS), Electrolytic Tinning Lines (ETL), and Galvanizing Lines via a reduction process (i.e., chrome removal) using sodium bisulfite, sulfuric acid, and sodium hydroxide. The new chrome treatment plant will also treat leachate from the Greenbelt II landfill and have dedicated sludge management equipment. United States Steel Corporation anticipates that the new chrome treatment plant will be operational during the renewed permit's lifecycle. The existing chrome treatment plant discharges to Burns Waterway via Outfall 004 through Internal Outfall 104. Effluent from the new chrome treatment plant will be discharged to Burns Waterway via Outfall 004. The operation and effectiveness of the new chrome treatment plant is projected to reduce total chromium loading to Burns Waterway. The estimated maximum daily flow for Outfall 204 is 1.44 MGD.

Citing the fact that Internal Outfall 204 will be further treatment of the same effluent for Internal Outfall 104, monitoring for the same parameters under the Federal Effluent Guidelines (FEGs) of 40 CFR 420 - Iron and Steel Manufacturing Point Source Category, Subparts I (Acid Pickling), J (Cold Forming), K (Alkaline Cleaning), and L (Hot Coating), and 40 CFR 433 - Metal Finishing Category, has been included. Limits for the combined effluent from Internal Outfalls 104 and 204 will be covered under the same FEGs calculated for 104, by applying the 104 limits to Compliance Point 304.

### Outfall 304 (compliance point)

The wastewater covered under compliance point 304 is subject to the Federal Effluent Guidelines of 40 CFR 420 - Iron and Steel Manufacturing Point Source Category, Subparts I (Acid Pickling), J (Cold Forming), K (Alkaline Cleaning), and L (Hot Coating). A portion of the wastewaters is also subject to 40 CFR 433 - Metal Finishing Category. The technology-based effluent limitations from the Federal Effluent Guidelines represent the minimum level of control (treatment) required under 327 IAC 5-5. The limits derived from 40 CFR 420 are calculated based on production values for applicable operations. The limits derived from 40 CFR 433 are based on flow volumes of applicable operations.

The following parameters (with applicable guidelines) are regulated for Outfall 304:

TSS (40 CFR 420, Subparts I, J, K, L; 40 CFR 433)  
Oil & Grease (40 CFR 420, Subparts I, J, K, L; 40 CFR 433)  
pH (40 CFR 420, Subparts I, J, K, L; 40 CFR 433)  
Total Lead (40 CFR 420, Subparts I, J, L; 40 CFR 433)  
Total Zinc (40 CFR 420, Subparts I, J, L; 40 CFR 433)  
Total Chromium (40 CFR 433)  
Total Nickel (40 CFR 433)  
Total Copper (40 CFR 433)  
Total Cadmium (40 CFR 433)  
Total Silver (40 CFR 433)  
Total Cyanide (40 CFR 433)  
Naphthalene (40 CFR 420, Subpart J)  
Tetrachloroethylene (40 CFR 420, Subpart J)  
Hexavalent Chromium (40 CFR 420, Subpart L)  
Total Toxic Organics (40 CFR 433)  
pH (40 CFR 420, 40 CFR 433)

## **Flow**

The effluent flow from Outfall 104 is to be monitored in accordance with 327 IAC 5-2-13(a)(2). Flow measurement is to be reported five times weekly.

## **pH**

The effluent limitation for pH (within 6.0 to 9.0 s.u.) are being assessed at final Outfall 004. Therefore, internal limitations for pH are not being continued but reporting of pH are being retained. Since 104 and 204 represent two separate treatment systems pH is reported there individually and not at the compliance outfall 304. pH is to be measured five times weekly by a grab sample.

## **TSS, Oil and Grease, Hex. Chromium, Zinc, T. Chromium, T. Cyanide, Fluoride, and Lead**

The effluent limitations for the referenced parameters originally for Outfall 104 from the previous permit have been retained to apply to Outfall 304. Pursuant to the federal antibacksliding provisions, the limits for these parameters cannot be relaxed to the quantities calculated from current production levels/volumes under 40 CFR 420 and 40 CFR 433 (See Part 6.5 of Fact Sheet). Assuming antibacksliding concerns are addressed, any increases in the loadings at the internal outfalls that do not include any additional treatment prior to discharge through the final outfall have to meet all antidegradation considerations.

TSS, oil and grease, hexavalent chromium, and zinc are to be measured five times weekly. Total chromium, total cyanide, and lead are to be measured one time weekly. Monitoring frequencies have been established taking into consideration the monitoring frequencies from the previous permit, all available effluent data, and the discharge volumes reported at Outfall 104. The required sample type for all parameters at Outfall 304, other than oil and grease and hexavalent chromium, is a 24 hour composite sample. The required sample type for hexavalent chromium is a grab sample, while oil and grease is to be measured by a minimum of three (3) grab samples collected at equally spaced time intervals for the duration of the discharge within a twenty-four (24) hour period.

## **Naphthalene and Tetrachloroethylene**

Effluent limitations for naphthalene and tetrachloroethylene are included at Outfall 304 because the regulation of these parameters is required under the federal effluent guidelines of 40 CFR 420. The limits are based on current production levels regulated under the federal guidelines. Both parameters are to be measured monthly by a grab sample.

## **Cadmium, Copper, Nickel, Silver, and Total Toxic Organics**

Monitoring requirements and effluent limitations for cadmium, copper, nickel, silver, and total toxic organics were not previously in the permit and have been added to Outfall 304, because the regulation of these parameters is required under the applicable federal effluent guidelines of 40 CFR 420 and 40 CFR 433. The effluent limitations were calculated based on current production rates (40 CFR 420). To satisfy antidegradation requirements, IDEM calculated TBELs for cadmium, copper, nickel, silver and total toxic organics based on the original flow volume for Outfall 104 of 2.162 MGD. Cadmium, copper, nickel, silver and total toxic organics are to be measured quarterly by a 24 hour composite sample. The permittee may submit the certification statement for TTO in Part



I.A.4., footnote [6] in lieu of the monitoring requirements through the submission of the TTO Management Plan outlined in Part I.H. of the permit.

### **BOD<sub>5</sub>, Chloride, Sulfate, Total Residual Chlorine And Total Iron**

Monitoring requirements and effluent limitations originally for 104 have not been retained at Outfall 304 for BOD<sub>5</sub>, chloride, sulfate, total residual chlorine and total iron. None of these parameters are regulated by applicable Federal Effluent Guidelines and are not necessarily reflective of the minimum level of treatment required of the WWTP by state and federal regulations. These parameters are only a concern when applying water quality standards at the point of discharge to a water of the state (See Outfall 004).

Appendices B, C, and D include the production/flow values for applicable operations, the multiplication factors from applicable Federal Effluent Guidelines, and the resulting technology-based effluent limitations applied at Outfall 304. As these limits are less stringent than those contained in the previous permit, the limits from the previous permit have been retained in the renewal permit in accordance with the antibacksliding provisions of 40 CFR 122.44(l)(1) and (2).

### **Outfalls 104 and 204**

Limits originally calculated for Internal Outfall 104 have been applied to Outfall 304 (compliance point). However, only monitoring for the same parameters for 104 will remain so that the combined mass for those parameters and the parameters for 204 will be limited under the same compliance point 304, citing the fact that wastewater treatment processes at Outfall 204 are further treating the effluent for 104 as opposed to being an additional wastewater source for Outfall 004.

### **Outfall 002**

Outfall 002 represents the discharge of non-contact cooling water. Although storm water is discharged at the same location, its discharge is designated as Outfall 102 in order to facilitate the monitoring of storm water separately. Sampling of all parameters at Outfall 002 is to be conducted during dry weather conditions to ensure the samples are representative of the volume and nature of the discharge of non-contact cooling water.

### **Flow**

The effluent flow from Outfall 002 is to be monitored in accordance with 327 IAC 5-2-13(a)(2). Flow measurement is to be reported weekly.

### **pH**

Effluent limitations for pH have been retained from the previous permit and are consistent with the minimum water quality criteria of 327 IAC 2-1.5-8(c)(2). The pH of the effluent is to be within a range of 6.0 to 9.0 standard units. pH is to be measured weekly by a grab sample.

### **Oil and Grease**

Monitoring requirements for oil and grease have been included in the renewal permit at Outfall 002. Discharges to a surface water shall not contain oil or other substances in amounts sufficient to create a visible film or sheen on the receiving water. It is not expected that the discharge will contain oil and grease. If oil and grease is detected, it

could be a sign of improper operation and maintenance of the system. Therefore, if oil and grease is measured in the effluent in significant quantities, above 5 mg/l, the source of such discharge is to be investigated and eliminated, if feasible. Oil and grease is to be measured weekly by a grab sample.

### **Total Residual Chlorine**

Due to the fact that the permitted facility adds chlorine to the intake water (for zebra mussel control) that ultimately discharges at Outfall 002, monitoring requirements and effluent limitations for total residual chlorine have been retained in the renewal permit. The effluent limitations are developed in accordance with the water quality-based requirements specific to GLI dischargers in 327 IAC 5-2-11.6. Considering the close proximity of the points of discharge from the three outfalls, the flows from each were combined in the calculation of WQBELs for total residual chlorine.

The effluent limitations of 0.01 mg/l as a monthly average and 0.02 mg/l as a daily maximum are water quality-based, and are below the limit of quantitation (LOQ) of 0.06 mg/l. In accordance with 327 IAC 5-2-11.6(h)(3), compliance with the daily maximum limit will be demonstrated when effluent concentrations for total residual chlorine are less than the LOQ. The permittee must comply with the monthly average limit, but may consider daily values that are less than the LOQ to be zero for purposes of calculating a monthly average value.

In accordance with 327 IAC 5-2-11.6(g)(1), mass limits and a mass-based compliance value for total residual chlorine are included in the renewal permit at Outfall 002, based on a flow volume of 7.08 MGD. Monitoring of total residual chlorine is to be conducted weekly by a grab sample.

### **Total Residual Oxidants**

Monitoring requirements and effluent limitations for total residual oxidants have not been retained in the renewal permit as bromine-based water treatment additives are no longer in use at the permitted facility.

### **Outfall 003**

Outfall 003 represents the discharge of non-contact cooling water. Although storm water is discharged at the same location, its discharge is designated as Outfall 103 in order to facilitate the monitoring of storm water separately. Sampling of required parameters at Outfall 003 is to be conducted during dry weather conditions to ensure the samples are representative of the volume and nature of the discharge of non-contact cooling water.

### **Flow**

The effluent flow from Outfall 003 is to be monitored in accordance with 327 IAC 5-2-13(a)(2). Flow measurement is to be reported weekly.

### **pH**

Effluent limitations for pH have been retained from the previous permit and are consistent with the minimum water quality criteria of 327 IAC 2-1.5-8(c)(2). The pH of the effluent is to be within a range of 6.0 to 9.0 standard units. pH is to be measured weekly by a grab sample.

## **Oil and Grease**

Monitoring requirements for oil and grease have been included in the renewal permit at Outfall 003. Discharges to a surface water shall not contain oil or other substances in amounts sufficient to create a visible film or sheen on the receiving water. It is not expected that the discharge will contain oil and grease. If oil and grease is detected, it could be a sign of improper operation and maintenance of the system. Therefore, if oil and grease is measured in the effluent in significant quantities, above 5 mg/l, the source of such discharge is to be investigated and eliminated, if feasible. Oil and grease is to be measured weekly by a grab sample.

## **Total Residual Chlorine**

Due to the fact that the permitted facility adds chlorine to the intake water (for zebra mussel control) that ultimately discharges at Outfall 003, monitoring requirements and effluent limitations for total residual chlorine have been retained in the renewal permit. The effluent limitations are developed in accordance with the water quality-based requirements specific to GLI dischargers in 327 IAC 5-2-11.6. Considering the close proximity of the points of discharge from the three outfalls, the flows from each were combined in the calculation of WQBELs for total residual chlorine.

The effluent limitations of 0.01 mg/l as a monthly average and 0.02 mg/l as a daily maximum are water quality-based, and are below the limit of quantitation (LOQ) of 0.06 mg/l. In accordance with 327 IAC 5-2-11.6(h)(3), compliance with the daily maximum limit will be demonstrated when effluent concentrations for total residual chlorine are less than the LOQ. The permittee must comply with the monthly average limit, but may consider daily values that are less than the LOQ to be zero for purposes of calculating a monthly average value.

In accordance with 327 IAC 5-2-11.6(g)(1), mass limits and a mass-based compliance value for total residual chlorine are included in the renewal permit at Outfall 003, based on a flow volume of 18.7 MGD. Monitoring of total residual chlorine is to be conducted weekly by a grab sample.

## **Total Residual Oxidants**

Monitoring requirements and effluent limitations for total residual oxidants have not been retained in the renewal permit as bromine-based water treatment additives are no longer in use at the permitted facility.

## **Outfall 004**

Outfall 004 represents the discharge of treated process wastewater from Outfalls 104 and 204, non-contact cooling water and Greenbelt II landfill leachate. Although storm water is discharged at the same location, it is treated through the treatment plants prior to discharge to Outfall 004, therefore separate storm water is not required at this time.

## **Flow**

The effluent flow from Outfall 004 is to be monitored in accordance with 327 IAC 5-2-13(a)(2). Flow measurement is to be reported 5 X Weekly.

## **pH**

Effluent limitations for pH have been retained from the previous permit and are consistent with the minimum water quality criteria of 327 IAC 2-1.5-8(c)(2). The pH of the effluent is to be within a range of 6.0 to 9.0 standard units. pH is to be measured 5 X Weekly by a grab sample.

### **Oil and Grease**

Oil and Grease is limited under compliance point, Outfall 304 – the combined equivalent of internal Outfalls 104 and 204 which contribute to Outfall 004. Therefore, monitoring requirements for oil and grease have been included in the renewal permit at Outfall 004. Oil and grease is to be measured five (5) times weekly by a grab sample.

### **Total Residual Chlorine**

Due to the fact that the permitted facility adds chlorine to the intake water (for zebra mussel control) that ultimately discharges at Outfall 004, monitoring requirements and effluent limitations for total residual chlorine have been retained in the renewal permit. The effluent limitations are developed in accordance with the water quality-based requirements specific to GLI dischargers in 327 IAC 5-2-11.6. Considering the close proximity of the points of discharge from the three outfalls, the flows from each were combined in the calculation of WQBELs for total residual chlorine.

The effluent limitations of 0.01 mg/l as a monthly average and 0.02 mg/l as a daily maximum are water quality-based, and are below the limit of quantitation (LOQ) of 0.06 mg/l. In accordance with 327 IAC 5-2-11.6(h)(3), compliance with the daily maximum limit will be demonstrated when effluent concentrations for total residual chlorine are less than the LOQ. The permittee must comply with the monthly average limit, but may consider daily values that are less than the LOQ to be zero for purposes of calculating a monthly average value.

In accordance with 327 IAC 5-2-11.6(g)(1), mass limits and a mass-based compliance value for total residual chlorine are included in the renewal permit at Outfall 004, based on a flow volume of 43.8 MGD. Monitoring of total residual chlorine is to be conducted weekly by a grab sample

### **Mercury**

A reasonable potential analysis for Mercury was done in accordance with the reasonable potential statistical procedure in 327 IAC 5-2-11.5(b) from a Waste Load Allocation performed by the Department of Environmental Management in February 2009 (Appendix E). The results of the reasonable potential procedure are included in Table 2 of Appendix E and they show that there is no reasonable potential to exceed (RPE) the Water Quality Based Effluent Limits (WQBELs) for Mercury. Therefore, only monitoring for Mercury has been included upon renewal of this permit.

### **Free Cyanide**

A reasonable potential analysis for Free Cyanide was done in accordance with the reasonable potential statistical procedure in 327 IAC 5-2-11.5(b) from a Waste Load Allocation performed by the Department of Environmental Management in February 2009 (Appendix E). The results of the reasonable potential procedure are included in Table 2 of Appendix E and they show that there is a reasonable potential to exceed (RPE) the Water Quality Based Effluent Limits (WQBELs) for Free Cyanide. Therefore, monthly average and daily maximum limits for Free Cyanide have been included upon renewal of this

permit. The Projected Effluent Quality (PEQ) used to calculate the RPE for Free Cyanide was based on a limited data set, requiring a high multiplying factor. As a result of the high multiplying factor, the PEQ exceeded the Monthly Average and Daily Maximum Preliminary Effluent Limits (PELs). In light of this fact, a reopening clause for Free Cyanide has been included in this permit. The permittee will be allowed to request a review of reasonable potential for Free Cyanide upon the submission of more effluent data. The data is to be collected at a minimum frequency of two times per month and for a minimum duration of ten months. Once a formal request to reopen the permit has been made and the data submitted, the PEQ may be recalculated to determine if there is no longer a reasonable potential to exceed the WQBELs for Free Cyanide.

### **Cadmium, Copper and Silver**

EPA has provided additional guidance to the State on determining the need for water quality based effluent limits at the final outfall using TBELs determined appropriate at an internal outfall. This approach is separate from the RPE statistical analysis done during the modeling phase of permit development. Once the TBELs are calculated these are then compared to the water quality based effluent limits using the allowed mass calculated for the TBELs. If the TBELs calculated mass exceed the water quality based effluent limits mass then there is a reasonable potential to exceed a water quality criterion and water quality based effluent limits are required at the final outfall. This has occurred for Cadmium, Copper and Silver for Outfall 004.

### **Total Residual Oxidants**

Monitoring requirements and effluent limitations for total residual oxidants have not been retained in the renewal permit as bromine-based water treatment additives are no longer in use at the permitted facility.

### **Outfalls 001, 102 and 103 (Storm Water)**

Outfalls 001, 102, and 103 regulate the discharge of storm water runoff from the permitted facility. Outfall 001 is retained from the previous permit and represents the direct discharge of storm water runoff to Portage-Burns Waterway. Outfalls 102 and 103 represent the discharge of storm water runoff prior to mixing with any other wastewater discharged at Outfalls 002 and 003 respectively. In addition to the Storm Water Pollution Prevention Plan (SWP3) requirements under Part I.E of the permit, the permittee will be required to monitor flow, TSS, COD, zinc, Ammonia, oil and grease, and pH. Noncontact cooling water is no longer discharged through Outfall 001, so Total Residual Chlorine is no longer a pollutant of concern at Outfall 001.

### **Outfall 500 (Temperature Requirements)**

Noncontact cooling water is discharged at Outfalls 002, 003 and 004. The temperature of the effluent from the combined outfalls is regulated under 327 IAC 2-1.5-8(c)(4) for a warm water aquatic community. As Portage-Burns Waterway is designated as a salmonid water under 327 IAC 2-1.5-5(a)(3)(B), the effluent temperature is also regulated under 327 IAC 2-1.5-8(d)(2) for cold water fish. According to the Lake Michigan Fisheries Office of the Indiana Department of Natural Resources, spawning and imprinting of salmonids occurs from September through the end of May annually and can occur at any place in the watershed. The temperature criteria for a warm water aquatic community and for cold water fish apply outside of a mixing zone.

327 IAC 2-1.5-8(c)(4) sets a maximum temperature limit by month, while 327 IAC 2-1.5-8(d)(2)(A) prohibits temperatures from exceeding 70° F at any time, and 327 IAC 2-1.5-8(d)(2)(B) prohibits temperatures from exceeding 65° F during spawning and imprinting of salmonids. 327 IAC 2-1.5-8(d)(2) states that these temperature limits apply unless due to natural causes. Therefore, the temperature limits for cold water fish are inapplicable when measured temperatures upstream of the discharge from Outfalls 002, 003 and 004 equal or exceed the temperature limit for that day. 327 IAC 2-1.5-8(d)(2) also states that the maximum temperature rise above natural shall not exceed 2°F at any time or place.

The thermal effluent requirements in the previous permit are based on temperature criteria that applied prior to the 1990 change in water quality standards. Prior to 1990, Portage-Burns Waterway was considered a migration route for salmonids so the permit included temperature criteria for migration routes for those months where they were more stringent than criteria that applied to a warm water aquatic community. Portage-Burns Waterway is now designated as a salmonid water and the temperature criteria are more stringent than those that applied to salmonid migration routes. Therefore, the temperature limits in the previous permit were updated to include the more stringent of the temperature criteria for cold water fish in 2-1.5-8(d) or for a warm water aquatic community in 2-1.5-8(c)(4). The previous permit includes a provision for instances where the upstream temperature equals or exceeds the temperature limit for any given day. In these instances the temperature from the combined discharge from Outfalls 002, 003 and 004 is prohibited from raising the temperature greater than 2°F at the edge of the mixing zone. This provision is only consistent with the temperature criteria for cold water fish. Based on a review of upstream temperature data presented in Attachment 35 of the wasteload allocation report in Appendix E, there is no reasonable potential to exceed the maximum temperature requirements for warm water aquatic communities during the months when temperature criteria for cold water fish are more stringent. Therefore, this provision was retained for those months when the temperature criteria for cold water fish are more stringent.

The following represents a month-by-month breakdown of the temperature limits included in the renewal permit:

|    | Jan | Feb | Mar  | Apr   | May   | Jun   | Jul   | Aug   | Sept  | Oct   | Nov   | Dec |
|----|-----|-----|------|-------|-------|-------|-------|-------|-------|-------|-------|-----|
| °F | 50  | 50  | 60   | 65*   | 65*   | 70*   | 70*   | 70*   | 65*   | 65*   | 65*   | 57  |
| °C | 10  | 10  | 15.6 | 18.3* | 18.3* | 21.1* | 21.1* | 21.1* | 18.3* | 18.3* | 18.3* | 14  |

\* in instances when the upstream temperature measurement equals or exceeds the referenced monthly temperature limit, the discharge will be considered to be in compliance with temperature requirements when the temperature rise at the edge of the mixing zone is no greater than 2°F.

Compliance with the thermal requirements in the previous permit is determined using a model developed by the facility in 1991 that calculates the temperature rise at the edge of the mixing zone for each outfall. A review of the model is included in the wasteload allocation report in Appendix E. Based on the review, the model may no longer be used to determine compliance with the temperature limits in the permit. Instead, the permit includes a requirement to measure the temperature in Portage-Burns Waterway at the edge of the mixing zone. The thermal mixing zone for Outfalls 002, 003 and 004 is the area in Portage-Burns Waterway extending from Outfall 002 to one-half the width of Portage-Burns Waterway and to a distance of 300 feet downstream of Outfall 004. Temperature measurements shall be taken at the edge of the mixing zone approximately 300 feet downstream of Outfall 004 and at mid-stream.

Instead of measuring the temperature at the edge of the mixing zone, the permittee may choose to submit a new model for review by IDEM as a measure to achieve compliance with the temperature limits in this permit. A reopening clause has been included in this permit to allow review for a proposed thermal model whereby the permit may be reopened to include such a provision for compliance. Any new model must limit the mixing zone to one-half the width of Portage-Burns Waterway and account for: upstream flow and temperature; effluent flow and temperature; and, the combined effect of the discharges from Outfalls 002, 003 and 004 on the temperature at the edge of the mixing zone. The permittee has a 24 month schedule of compliance to develop a newly proposed model or install monitoring equipment to comply with the current thermal effluent requirements. Any proposed model should be provided to IDEM at least 90 (ninety) days prior to anticipated use of model for review and must be approved by IDEM before use.

As an interim condition the permittee shall submit a progress report to the Compliance Data Section of OWQ no later than twelve (12) months from the effective date of this permit. This report shall include detailed information on the steps the permittee has taken to achieve compliance with the final temperature limitations.

- g. Cooling Water Intake Structure (CWIS)** - Section 316(b) of the Clean Water Act requires that facilities minimize adverse environmental impact resulting from the operation of cooling water intake structures (CWIS) by using the “best technology available” (BTA). U.S. EPA has promulgated rules to implement these requirements for new facilities (Phase I rules), large, existing power plants (Phase II rules), and offshore oil and gas extraction facilities (Phase III rules), and that implementation must take place through the issuance of NPDES permits. However, there is a large universe of facilities which are not specifically addressed by the rules, including:

- New facilities with a CWIS design flow less than 2 MGD;
- Existing power plants with a CWIS design flow less than 50 MGD;
- Manufacturing facilities such as existing steel mills, paper mills, etc. with a surface water intake that use at least a portion of their intake flow for cooling purposes.

U.S. EPA has recently emphasized that all of these facilities, including those not specifically addressed by rules must be evaluated for 316(b) compliance. 40 C.F.R. §125.90(b) directs permitting authorities to establish 316(b) requirements on a best professional judgment (BPJ) basis for existing facilities not subject to categorical section 316(b) regulations (Phase I, II (currently remanded) or III rules. IDEM is required to make a BTA determination using BPJ so the permit will comply with the federal regulation.

In response to a Request for Additional Information Pursuant to the Clean Water Act 316(b) from IDEM, the United States Steel Corporation submitted information and technical data on the cooling water intake structure at the Midwest Plant, dated November

the 7<sup>th</sup>, 2008. An evaluation of the information and data has been performed, and it has been determined that this technology currently represents the best technology available to minimize adverse environmental impact in accordance with Section 316(b) of the federal Clean Water Act (33 U.S.C. section 1326). A summary entailing the submitted information and rationale for this determination follows.

The Midwest intake is designed with a closed intake conduit to withdraw water from Lake Michigan via four intake openings (diameter is approximately 8 feet 8 inches each), which are capped with bars spaced approximately 7 inches apart in a grid pattern. The four intake openings are located approximately 2,800 feet off-shore of the Midwest facility in the Southern Lake Michigan Basin. An 84-inch diameter pipe transports water from the openings in Lake Michigan to Pump Station #1. Pump Station #1 includes two forebays equipped with one vertical screen of 1/4<sup>th</sup> inch mesh each; four vertical Fairbanks – Morse Deep Well Turbine pumps with a maximum capacity of approximately 17.2 MGD each; and a distribution manifold to deliver cooling water to all plant areas. Over the past year from November of 2007, through October 2008, intake volumes for Pump Station #1 averaged approximately 36.4 MGD with three pumps typically running at one time. Current maintenance includes annual inspection by divers for integrity and condition status of the intake system and normal preventative maintenance inspections of mechanical pump and water distribution components.

Based upon this information and documentation provided to IDEM, IDEM has evaluated the information and has made a BTA determination on the information submitted.

- I. The magnitude of the calculated velocities at the mouth of the intake structures in Lake Michigan is equal to or less than a flow velocity of 0.5 ft/s that is believed to impair fish swimming ability.
- II. A permit condition has been included to determine adequate fish return of species to demonstrate minimize fish mortality.
- III. The off shore location of the cooling water intake structure is located such that entrainment is minimized.

Any additional Studies and/or additional information shall be submitted prior to or with the permit renewal.

- h. Storm water** - According to 40 CFR 122.26(b)(14)(ii) and 327 IAC 5-4-6(b)(1) facilities classified as a "Steam Electric Power Generating Facility" are considered to be engaging in "industrial activity" for purposes of 40 CFR 122.26(b). Therefore the permittee is required to have all storm water discharges associated with industrial activity permitted. Treatment for storm water discharges associated with industrial activities is required to meet, at a minimum, best available technology economically achievable/best conventional pollutant control technology (BAT/BCT) requirements. EPA has determined that non-numeric technology-based effluent limits have been determined to be equal to BPT/BAT/BCT for storm water associated with industrial activity.

Storm water associated with industrial activity must be assessed to determine compliance with all water quality standards. The non-numeric storm water conditions and effluent limits contain the technology-based effluent limitations. Effluent limitations, as defined in the CWA, are restrictions on quantities, rates, and concentrations of constituents which are discharged. Effective implementation of these requirements should meet the applicable water quality based effluent limitations. Violation of any of these effluent limitations constitutes a violation of the permit.



The technology-based effluent limitations require the permittee to minimize exposure of raw, final, or waste materials to rain, snow, snowmelt, and runoff. In doing so, the permittee is required, to the extent technologically available and economically practicable and achievable, to either locate industrial materials and activities inside or to protect them with storm resistant coverings. In addition, the permittee is required to: (1) use good housekeeping practices to keep exposed areas clean, (2) regularly inspect, test, maintain and repair all industrial equipment and systems to avoid situations that may result in leaks, spills, and other releases of pollutants in stormwater discharges, (3) minimize the potential for leaks, spills and other releases that may be exposed to stormwater and develop plans for effective response to such spills if or when they occur, (4) stabilize exposed area and contain runoff using structural and/or non-structural control measures to minimize onsite erosion and sedimentation, and the resulting discharge of pollutants, (5) divert, infiltrate, reuse, contain or otherwise reduce stormwater runoff, to minimize pollutants in your discharges, (6) enclose or cover storage piles of salt or piles containing salt used for deicing or other commercial or industrial purposes, including maintenance of paved surfaces, (7) train all employees who work in areas where industrial materials or activities are exposed to stormwater, or who are responsible for implementing activities necessary to meet the conditions of this permit (e.g., inspectors, maintenance personnel), including all members of your Pollution Prevention Team, (8) ensure that waste, garbage and floatable debris are not discharged to receiving waters by keeping exposed areas free of such materials or by intercepting them before they are discharged, and (9) minimize generation of dust and off-site tracking of raw, final or waste materials.

To meet the non-numeric effluent limitations in Part I.D.4, the permit requires the permitted facility to select control measures (including best management practices) to address the selection and design considerations in Part I.D.3.

The permittee must control its discharge as necessary to meet applicable water quality standards. It is expected that compliance with the non-numeric effluent limitations and other terms and conditions in this permit will meet this effluent limitation. However, if at any time the permittee, or IDEM, determines that the discharge causes or contributes to an exceedance of applicable water quality standards, the permittee must take corrective actions, and conduct follow-up monitoring.

#### “Term and Condition” to Provide Information in a SWPPP

Distinct from the effluent limitation provisions in the permit, the permit requires the discharger to prepare a Stormwater Pollution Prevention Plan (SWPPP) for its facility. The SWPPP is intended to document the selection, design, installation, and implementation (including inspection, maintenance, monitoring, and corrective action) of control measures being used to comply with the effluent limits set forth in Part I.D. of the permit. In general, the SWPPP must be kept up-to-date, and modified whenever necessary to reflect any changes in control measures that were found to be necessary to meet the effluent limitations in this permit.

The requirement to prepare a SWPPP is not an effluent limitation, rather it documents what practices the discharger is implementing to meet the effluent limitations in Part I.D. of the permit. The SWPPP is not an effluent limitation because it does not restrict quantities, rates, and concentrations of constituents which are discharged. Instead, the requirement to develop a SWPPP is a permit “term or condition” authorized under sections 402(a)(2) and 308 of the Act. Section 402(a)(2) states, “[t]he Administrator shall prescribe conditions for [NPDES] permits to assure compliance with the requirements of paragraph (1) of this subsection, including conditions on data and information collection, reporting, and such other requirements as he deems appropriate.” The SWPPP requirements set forth in this

permit are terms or conditions under the CWA because the discharger is documenting information on how it intends to comply with the effluent limitations (and inspection and evaluation requirements) contained elsewhere in the permit. Thus, the requirement to develop a SWPPP and keep it updated is no different than other information collection conditions, as authorized by section 402(a)(2), in other permits.

IDEM's Non-Numeric Effluent Limitations and SWPPP language was modeled from and is consistent with the EPA's Multi-Sector General Permit for Storm Water Discharges Associated with Industrial Activity, issued on September 29, 2008. It should be noted that EPA has developed a guidance document, "Storm Water Management for Industrial Activities: Developing Pollution Prevention Plans and Best Management Practices", 1992 to assist facilities in developing a SWPPP. The guidance contains worksheets, checklists, and model forms that should assist a facility in developing a SWPPP.

- i. **Thermal Effluent Limitations—Changes** - Noncontact cooling water is discharged at Outfalls 002, 003 and 004. The temperature of the effluent from the combined outfalls is regulated under 327 IAC 2-1.5-8(c)(4) for a warm water aquatic community. As Portage-Burns Waterway is designated as a salmonid water under 327 IAC 2-1.5-5(a)(3)(B), the effluent temperature is also regulated under 327 IAC 2-1.5-8(d)(2) for cold water fish. According to the Lake Michigan Fisheries Office of the Indiana Department of Natural Resources, spawning and imprinting of salmonids occurs from September through the end of May annually and can occur at any place in the watershed. The temperature criteria for a warm water aquatic community and for cold water fish apply outside of a mixing zone.

327 IAC 2-1.5-8(c)(4) sets a maximum temperature limit by month, while 327 IAC 2-1.5-8(d)(2)(A) prohibits temperatures from exceeding 70° F at any time, and 327 IAC 2-1.5-8(d)(2)(B) prohibits temperatures from exceeding 65° F during spawning and imprinting of salmonids. 327 IAC 2-1.5-8(d)(2) states that these temperature limits apply unless due to natural causes. Therefore, the temperature limits for cold water fish are inapplicable when measured temperatures upstream of the discharge from Outfalls 002, 003 and 004 equal or exceed the temperature limit for that day. 327 IAC 2-1.5-8(d)(2) also states that the maximum temperature rise above natural shall not exceed 2°F at any time or place.

The thermal effluent requirements in the previous permit are based on temperature criteria that applied prior to the 1990 change in water quality standards. Prior to 1990, Portage-Burns Waterway was considered a migration route for salmonids so the permit included temperature criteria for migration routes for those months where they were more stringent than criteria that applied to a warm water aquatic community. Portage-Burns Waterway is now designated as a salmonid water and the temperature criteria are more stringent than those that applied to salmonid migration routes. Therefore, the temperature limits in the previous permit were updated to include the more stringent of the temperature criteria for cold water fish in 2-1.5-8(d) or for a warm water aquatic community in 2-1.5-8(c)(4). The previous permit includes a provision for instances where the upstream temperature equals or exceeds the temperature limit for any given day. In these instances the temperature from the combined discharge from Outfalls 002, 003 and 004 is prohibited from raising the temperature greater than 2°F at the edge of the mixing zone. This provision is only consistent with the temperature criteria for cold water fish. Based on a wasteload allocation report drafted by IDEM, there is no reasonable potential to exceed the maximum temperature requirements for warm water aquatic communities during the months when temperature criteria for cold water fish are more stringent. Therefore, this provision was retained for those months when the temperature criteria for cold water fish are more stringent.

The following represents a month-by-month breakdown of the temperature limits included in the renewal permit:

|    | Jan | Feb | Mar  | Apr   | May   | Jun   | Jul   | Aug   | Sept  | Oct   | Nov   | Dec |
|----|-----|-----|------|-------|-------|-------|-------|-------|-------|-------|-------|-----|
| °F | 50  | 50  | 60   | 65*   | 65*   | 70*   | 70*   | 70*   | 65*   | 65*   | 65*   | 57  |
| °C | 10  | 10  | 15.6 | 18.3* | 18.3* | 21.1* | 21.1* | 21.1* | 18.3* | 18.3* | 18.3* | 14  |

\* in instances when the upstream temperature measurement equals or exceeds the referenced monthly temperature limit, the discharge will be considered to be in compliance with temperature requirements when the temperature rise at the edge of the mixing zone is no greater than 2°F.

Compliance with the thermal requirements in the previous permit is determined using a model developed by the facility in 1991 that calculates the temperature rise at the edge of the mixing zone for each outfall. A review of the model is included in the wasteload allocation report in Appendix E. Based on the review, the model may no longer be used to determine compliance with the temperature limits in the permit. Instead, the permit includes a requirement to measure the temperature in Portage-Burns Waterway at the edge of the mixing zone. The thermal mixing zone for Outfalls 002, 003 and 004 is the area in Portage-Burns Waterway extending from Outfall 002 to one-half the width of Portage-Burns Waterway and to a distance of 300 feet downstream of Outfall 004. Temperature measurements shall be taken at the edge of the mixing zone approximately 300 feet downstream of Outfall 004 and at mid-stream.

Instead of measuring the temperature at the edge of the mixing zone, the permittee may choose to submit a new model for review by IDEM as a measure to achieve compliance with the temperature limits in this permit. A reopening clause has been included in this permit to allow review for a proposed thermal model whereby the permit may be reopened to include such a provision for compliance. Any new model must limit the mixing zone to one-half the width of Portage-Burns Waterway and account for: upstream flow and temperature; effluent flow and temperature; and, the combined effect of the discharges from Outfalls 002, 003 and 004 on the temperature at the edge of the mixing zone. The permittee has a 24 month schedule of compliance to develop a newly proposed model or install monitoring equipment to comply with the current thermal effluent requirements. Any proposed model should be provided to IDEM at least 90 (ninety) days prior to anticipated use of model for review and must be approved by IDEM before use.

As an interim condition the permittee shall submit a progress report to the Compliance Data Section of OWQ no later than twelve (12) months from the effective date of this permit. This report shall include detailed information on the steps the permittee has taken to achieve compliance with the final temperature limitations.

## 5) For More Information

The public should direct questions to Matthew Carmichael, permit manager with IDEM's Office of Water Quality, at (317) 233-5961, or via e-mail to [mcarmich@idem.IN.gov](mailto:mcarmich@idem.IN.gov).

The media should direct inquiries to Amber Finkelstein, IDEM public information officer, at (800) 451-6027, ext. 2-8512, (317) 232-8512, or via e-mail to [afinkels@idem.IN.gov](mailto:afinkels@idem.IN.gov).